CLAIMS

What is claimed is:

1. A primer-specific and mispair extension assay for determining genotype, said assay comprising:

   a) extending a nucleic acid sequence from a patient sample with *pfu* DNA polymerase, using a primer specific for a genotype to be determined, and an incomplete set of dNTPs in the absence of ddNTPs, under suitable conditions for obtaining extension products of the primer, wherein at least one of the primer or the dNTPs is labeled;

   b) characterizing the extension products; and

   c) comparing the extension products with known nucleic acid sequences of various genotypes for determining the genotype of the nucleic acid sequence extended.

2. The assay according to claim 1, wherein characterizing comprises separating said extension products by size.

3. The assay according to claim 1, further comprising amplifying a nucleic acid sequence prior to extending said nucleic acid sequence.

4. The assay according to claim 3, wherein the incomplete set of dNTPs contains three different types of nucleotides.

5. The assay according to claim 4, wherein the incomplete set of dNTPs contains two different types of nucleotides.

6.   The assay according to claim 1, wherein the primer is labeled with a radioactive label.

7.   The assay according to claim 1, wherein one of the dNTPs is labeled with a radioactive label.

8.   The assay according to claim 1, wherein the primer is labeled with a fluorescent label.

9.   The assay according to claim 1, wherein said extending, said characterizing and said comparing are automated.

10.   The assay according to claim 2, further comprising sequencing the extension products after separating the extension products by size.

11.   The assay according to claim 1, wherein said genotype is a Hepatitis C virus genotype.

12.   The assay according to claim 11, wherein said primer is selected from the group consisting of SEQ. ID NO. 1, SEQ. ID NO. 2, SEQ. ID NO. 3, SEQ. ID NO. 4, SEQ. ID NO. 5, SEQ. ID NO. 6, SEQ. ID NO. 7, SEQ. ID NO. 8, SEQ. ID NO. 9, SEQ. ID NO. 10, SEQ. ID NO. 11, SEQ. ID NO. 12, SEQ. ID NO. 13, SEQ. ID NO.14, and SEQ. ID NO. 15.